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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WARREN, DAVID S	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/759,442	HOSLER, DAVID	
	Examiner	Art Unit	
	David S. Warren	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27,30 and 31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27,30 and 31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/16/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 21 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 21, it is not clear as to what is meant by "takes advantage of" the natural phase relationship of the soundboard. The phrase "takes advantage of" contemplates any (and all) uses of phase relationships on the soundboard. Correction and/or clarification is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 – 3, 7, and 18 – 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Schaller (4,535,668). Regarding claim 1, Schaller discloses the use of a transducer for converting mechanical vibration to an electrical signal comprising a housing (28; fig. 4), a substantially cylindrical permanent magnet (34, fig. 4; two curvilinear sides is enough to qualify as *substantially* cylindrical), wherein the magnet

has side-to-side polarization (see polarization of element 34 in fig. 4). Regarding claim 2, any symmetrical shape with two axes of symmetry will possess a "central axis" – the north and south poles of element 34 are perpendicular to the central axis. Regarding claim 3, element 37 is deemed to be a diaphragm. Regarding claim 7, Schaller discloses a bobbin (35) to constrain the coil. Regarding claim 18, Schaller discloses the use of a musical instrument sensor array (fig. 1), two sensors (for each element 34 of fig. 4; please note there are two elements 34), each having a housing, substantially cylindrical magnet, coil, and wherein the magnet has a top and bottom end, a curvilinear side surface, and a side-to-side polar orientation. Regarding claim 19, the sensors are oriented in the same direction (both N poles of 34 face the same direction; top and bottom surfaces face the same direction). Regarding claim 20, see fig. 1 – any location on the soundboard is "distinct." Regarding claim 21, (see §112 rejection) any pickup will take advantage of phase relationships (since phase relationships exist everywhere on the soundboard). Regarding claim 22, see col. 1, paragraph 1. Regarding claim 23, Schaller discloses that the pickup need not be located on the top surface of the soundboard (col. 2, lines 57 – 61). Regarding claim 24, see fig. 1.

5. Claims 1, 5, 6, 8, 9, 11 – 13, 16 – 18, 25 – 27, 30, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Idogaki et al. (4,922,753). Regarding claims 1 and 18 (for claim 18, a sensor *for* a musical instrument is deemed an intended usage and, therefore, is not afforded any patentable weight), Idogaki discloses the use of a housing (14, fig. 6), a cylindrical permanent magnet (2; fig. 6), a coil (4a, 4b, 5a, 5b), wherein the magnet has a side-to-side polar orientation (col. 10, lines 5 – 6; i.e., the end

faces of the magnet are the pole faces). Regarding claim 5, the magnet is "floating" (see sentence bridging cols. 2 and 3), and will therefore respond to vibrations with three degrees of freedom (i.e., linear and rotational). Regarding claim 6, Idogaki shows that the movement of magnet (2) induces current changes in coils 5a and 5b (col. 8, lines 62 – 66). Regarding claim 8, Idogaki discloses a housing (14), a cylindrical permanent magnet (2), a coil (5a, 5b), a top and bottom end and curvilinear side surfaces ("top" and "bottom" are relative terms), and the magnet is suspended in ferrofluid (see sentence bridging cols. 2 and 3). Regarding claim 9, the magnet of Idogaki has a side-to-side polarization ("side-to-side" is a relative term). Regarding claims 11 and 26, Idogaki shows that the ferrofluid acts as a liquid spring (col. 8, lines 27 – 30). Regarding claims 12 and 27, Idogaki shows that the fluid damps external vibration (the Examiner maintains that any viscoelastic fluid will inherently dampen vibration – see col. 8, lines 27 – 30; especially those having a spring force). Regarding claims 13 and 30, the ferrofluid of Idogaki is a synthetic oil (col. 10, lines 16 – 22). Regarding claim 16, as stated supra, any movement in the magnet (2) will induce current in coils (5a, 5b). Regarding claim 17, Idogaki discloses the use of a bobbin (3; col. 6, lines 12 – 15). Regarding claim 25, this limitation has been addressed supra with respect to claim 8. Regarding claim 31, this limitation has been discussed supra (see also the sentence bridging cols. 2 and 3). Assuming arguendo, the Examiner maintains that sensing acceleration and vibration are synonymous since both require sensing the relative position of the permanent magnet.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 3, 4, 10, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Idogaki (4,922,753) in view of Iwasaki (4,338,823). The teachings of Idogaki have been discussed supra. Regarding claims 3 and 4, Idogaki does not disclose the use of a diaphragm that allows a the magnet to vibrate both linearly and rotationally. While Idogaki discloses a free floating magnet capable of moving in any direction (i.e., linearly and rotationally; see col. 8, lines 34 – 37, albeit Idogaki seeks to reduce all but the non-linear vibrations), Idogaki does not disclose the use of a diaphragm. Iwasaki discloses a vibration sensor having a ferromagnetic member (19; the Examiner maintains that the magnet 5 induces a side-to-side polarization that is functionally equivalent to that of the Applicant's invention) mounted on a diaphragm (18) capable of vibrating in any direction (col. 6, lines 20 – 21). It would have been obvious to one of ordinary skill in the art to add a diaphragm to Idogaki. The motivation for making such a modification would be to increase the damping capability of the Idogaki invention. Regarding claim 10, Idogaki does not disclose the use of a polar axis perpendicular to an axis passing through a top and bottom surface. The magnet (5) of Iwasaki will inherently induce a side-to-side polarization in the ferromagnetic material (19), this is deemed to be functionally equivalent to that of the Applicant's magnet

polarization. Regarding claims 14 and 15, neither Idogaki nor Iwasaki disclose the use of a metal insert for preventing the magnet from freely spinning. However, Idogaki does disclose the need to stabilize the movement and position of the magnet (col. 5, 16 – 18). It would have been obvious to one of ordinary skill in the art to add a metal insert to the device of Idogaki to prevent free spinning of the magnet. The motivation for making this modification would be that by including an insert, the device of Idogaki would withstand greater (and sense) greater external forces (i.e., those that fluid alone would not withstand).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Warren whose telephone number is 571-272-2076. The examiner can normally be reached on M-F, 9:30 A.M. to 6:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 571-272-2837. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

dsw

LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER